

- 3 -

Remarks

This is responsive to the Office Action dated June 30, 2005.

1. Claims 1-6 remain for consideration.
2. An IDS is herewith.
3. Page 2 is amended (herewith) to refer only to the continuing applications and corresponding publications.
- 4,5. Claims 1-4 are rejected as obvious over Schmidt et al. With respect to batteries, the disclosure of Schmidt et al is best understood with reference to Figs. 18A and 18B along with paragraphs 0160 through 0177. As shown in Figs. 15 and 17, the battery stage 208 is permanently connected in parallel with the load, and is therefore permanently connected in parallel with a series combination of the fuel cell and the power conditioning circuits. Every 20 milliseconds the controller passes through Fig. 18A, the step 106 comprising Fig. 18B. If indeed the fuel cells are all within their design operating voltage, step 102 in Fig. 18A will reach the battery maintenance of Fig. 18B. Regardless, then, of anything else, the duty cycle is increased or decreased in order to suit the battery charging illustrated in Fig. 19. That is to say, Schmidt does not teach other than a fully parallel connected battery and an operation which increases or decreases average fuel cell output voltage as a function of battery need. As seen in Fig. 2, the system of the present invention includes an energy storage system which is not permanently in parallel with the fuel cell power plant output (that is, not connected permanently in parallel with the vehicle propulsion system 169 across the outputs 155, 156.)

Reference to the portions of Schmidt et al referred to above will show that the description of Schmidt between lines 2 and 7 on page 3 of the rejection is not quite correct. The battery is connected in parallel; if its voltage is lower than that being provided to the load, it will receive current; if the voltage is more, it will not. The question of manipulation of that voltage by means of the power conditioning circuitry, by increasing or reducing the duty cycle, has to do with the manner of

- 4 -

controlling the voltage, rather than whether or not energy flows into or out of the battery.

This clarification is important simply because of the fact that a single reference -103 rejection has been applied to the claims herein. Since Schmidt et al only controls the voltage to suit the battery whenever the fuel cells are within their range of .6 - .7 volts, and controls the voltage to suit the fuel cells if they are ever outside that range, Schmidt et al do not suggest controlling connection of the battery, or disconnection of the battery, nor does Schmidt et al suggest controlling whether there is or is not energy transfer to the battery. That being the case, it is hard to see the relationship between Schmidt et al and the recitation in the first five lines of page 4 of the rejection.

Furthermore, the inventors Schmidt, DeVres and Dodge had more than ordinary skill in the art and in 2001, did not think to store excess energy generated at startup or shutdown. The only concern at startup appears in paragraph 0060, which is to control the fans. In paragraph 0102, a default duty cycle of 50% is used at startup. Paragraph 0155 states that pulse width modulation begins only after all cells either individually or on average have reached a threshold, desired range of voltage after startup. In paragraph 0161, Figs. 18A and 18B are executed after startup conditions wherein voltages of the fuel cells are within the desired range.

Additionally, the other reference relied on, (Zhu et al) did not, as of September 4, 2003, find it obvious to do that which is claimed herein as of September 23, 2003. The difference of 19 days presents a hard case. The state of the prior art (Graham v. Deere) is that a few days before this application was filed, those skilled in the art did not find that excess energy at startup and shutdown should be stored.)

At this point it appears that the statement on page 4 of the rejection that "one of ordinary skill in the art at the time the invention made would have stored the excess energy...." is based only on information provided in the present

- 5 -

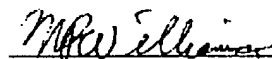
application, and is contrary to the record in this case (Zhu et al). Therefore, reconsideration and allowance of claims 1-4 over Schmidt et al is hereby requested.

6,7. Claims 5 and 6 are rejected as obvious over Schmidt et al in view of Zhu et al. These claims depend from claim 1 and are patentable for the same reasons; allowance is requested.

8-10. Withdrawal of the rejections and objections is noted with gratitude.

Should the foregoing not be persuasive, a telephone interview is earnestly solicited.

Respectfully submitted,



M. P. Williams

Attorney of Record

Voice: 860-649-0305

Fax: 860-649-1385

210 Main Street
Manchester, CT 06040

Date: August 16, 2005